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August 22, 2004

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APPLICATION NUMBER: 60/482,628
FILING DATE: *June 25, 2003*
RELATED PCT APPLICATION NUMBER: *PCT/US04/20562*

Certified by



Jon W Dudas

Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the U.S.
Patent and Trademark Office



PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

EU245163295US

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Given Name (first and middle (if any))	Family Name or Surname		Residence (City and either State or Foreign Country)		
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<input checked="" type="checkbox"/> Additional inventors are being named on the <u>1</u> separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
A SECURE NETWORK PRIVACY SYSTEM					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number		Type Customer Number here		Place Customer Number Bar Code Label here	
<input checked="" type="checkbox"/> Firm or Individual Name		Francisco A. Rubio-Campos			
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		12	<input type="checkbox"/> CD(s), Number		
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets		4	<input type="checkbox"/> Other (specify)		
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)	
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number:		502542		\$80.00	
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are:					

Respectfully submitted,

SIGNATURE

Date 06/25/2003

TYPED or PRINTED NAME Francisco A. Rubio-Campos

REGISTRATION NO.
(if appropriate)
Docket Number:

45,358

TELEPHONE (949) 448-9410

IF03001USV

IF03003USV

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

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17611 U.S. PTO
06/25/03

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 80.00

Complete if Known

Application Number Unknown
Filing Date June 25, 2003
First Named Inventor Lance M. Cottrell et al.
Examiner Name Not applicable
Art Unit Unassigned
Attorney Docket No. IF03003USV

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number 502542
Deposit Account Name The Eclipse Group

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	80.00
SUBTOTAL (1)			(\$ 80.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims -20** = X =
Independent Claims -3** = X =
Multiple Dependent =

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 410	2252 205	Extension for reply within second month	
1253 930	2253 465	Extension for reply within third month	
1254 1,450	2254 725	Extension for reply within fourth month	
1255 1,970	2255 985	Extension for reply within fifth month	
1401 320	2401 160	Notice of Appeal	
1402 320	2402 160	Filing a brief in support of an appeal	
1403 280	2403 140	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,300	2453 650	Petition to revive - unintentional	
1501 1,300	2501 650	Utility issue fee (or reissue)	
1502 470	2502 235	Design issue fee	
1503 630	2503 315	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 750	2809 375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 750	2810 375	For each additional invention to be examined (37 CFR 1.129(b))	
1801 750	2801 375	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 0.00

SUBMITTED BY

Name (Print/Type) Francisco A. Rubio-Campos Registration No. 45,358 Telephone 949-448-9410
Signature *[Signature]* (Attorney/Agent) Date June 25, 2003

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IF03003USV

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Number 2 of 2

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A SECURE NETWORK PRIVACY SYSTEM

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BACKGROUND OF THE INVENTION

[001] 1. Field of the Invention.

[002] This invention relates generally to network communication systems. In particular, this invention relates to an Internet privacy system capable of operating across multiple platforms.

[003] 2. Related Art.

[004] As the global computer network known as the Internet continues to grow globally at a rapid pace, an increasing number of people and businesses from around the world are accessing the Internet for both business and personal activities. As a result, the Internet has become a virtual community where people communicate with each other by sending and receiving electronic, voice and image messages for business and pleasure. These communications include sharing ideas and information, sending personal and business message back and forth, researching information, expressing opinions and ideas both personal and political, and conducting business negotiations and transactions (generally known as "electronic commerce" or "e-commerce"). In response to this new

electronic activity, business, governments and certain individuals attempt to identify and track individual Internet users for numerous purposes including, but not limited to, advertising, market research, customizing information of Internet sites (i.e., "websites") snooping and eavesdropping on communications, political and law enforcement activities, fraud and malicious activities. Many of these attempts are threats to the individual users of the Internet because they attempt to gain personal information about the user and the user's activities on the Internet (generally referred to as the user's "online activities") typically without the user's express consent or knowledge.

[005] These threats typically gain information about the user by logging a user's Internet Protocol ("IP") address (the electronic address that specifically identifies a user's computer to the network) or by installing programs or files on to the user's computer such as "cookies," ActiveX™ applications, Java™, script files, Spyware, or hostile programs such as viruses. These threats allow an outside user, be it a government, business, or individual entity, to perform such tasks as identify a user, obtaining the user's personal information that is stored on the computer (including names, address, financial, private files, and/or other confidential, private and/or sensitive information), and track the user's activities on the Internet including recording every website visited or every email sent or received by the user. Malicious programs such as viruses may also be installed on the user's computer that can modify, erase or destroy the user's operating system of personal files.

[006] Unfortunately, most people that utilize the Internet do not understand technically how networks such as the Internet function nor do they generally appreciate

the number and types of threats that they will experience once they connect (i.e., “log-on”) to the Internet. Past attempts at protecting users on the internet include using “firewalls” to block certain types of threats from the Internet, virus protection programs for detecting malicious programs, and spyware and cookie file removal software. However, these past attempts do not protect a user’s identity because most of these approaches attempt to disinfect a user from intruders after the fact. These past approaches do not protect a user’s identity as soon as the user connects to the Internet because connected websites are able to read and identify the user’s IP address among other things. A need therefore exist to protect a user’s identity as soon as the user connects to the Internet (i.e., known as “surfing the web” or “surfing the Net”).

[007] Attempts in the past at protecting the user’s identity have included allowing a user to connect to an intermediate server connected to the Internet that extracted off the user’s IP information and substituted it with the IP address of the intermediate server thus creating an anonymous user that could then continue to surf the Net without worrying that their IP information would be used to identify them.

[008] Unfortunately, this approach was too technical and difficult to operate by most Internet users. Therefore, there is a need for a privacy management system that solves the problems recited above and allows Internet users to easily maintain their privacy by utilizing an anonymous server.

BRIEF DESCRIPTION OF THE FIGURES

[009] The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the invention. In the figures, like reference numerals designate corresponding parts throughout the different views.

[010] FIG. 1 shows a signal flow diagram of an example process for HTTP request with full time SSL on.

[011] FIG. 2 shows a signal flow diagram of an example process for requests made using SSL.

[012] FIG. 3 shows a flow chart for an example process performed by the architecture of the invention.

[013] FIG. 4 shows a signal flow diagram of an example process for determining the sequence of events on a client proxy.

DETAILED DESCRIPTION

[014] This invention describes a method for providing Internet privacy service which shall be described in relation to example implementation herein referred to as AnonPro. AnonPro may be a specific implementation of our inventions for providing Internet privacy services. The components described in this detailed description and figures are an example implementation for some of our particular applications, however, the technologies and inventions described herein are much more general. The components are generally a network level traffic interceptor (client side), a client proxy, a server proxy, an SSL module, and some web based services (such as the user

authentication, server lists, recommended site settings lists etc.). Generically speaking, the combination of the components is an "Internet privacy system." The client part is "Internet Privacy Client", while the server proxy is "Internet Privacy remote proxy." In the description of this invention we often refer to registry entries or other specific ways of storing information. In all cases this information could be stored in any number of ways including in flat files, indexed files, local or remote databases, among others. In the description of this invention we often refer to cookies. Many other information transfer techniques could be used in place of cookies including HTML headers, changes to URLs or other addresses, any other standard or custom message or data structure. In the description of this invention we often refer to XML data structures. In general these structures could be replaced with any other kind of data structure, including other standard and non-standard, encrypted and non-encrypted structures. CA stands for "Certificate Authority" and refers to an entity or encryption key used for signing other keys such as SSL keys.

[015] Additionally, The AnonPro Server Proxy (also known as the "Internet Privacy Remote Proxy") is a system that relays data from the client on the user's PC to the computer hosting the content or service the user is trying to access through the system's Internet Privacy System (the Destination). The proxy acts to hide the user's IP address and may perform other actions based on the content of the request or the contents of the reply from the Destination. These actions may include adding, changing, or removing text, data, information, scripts or other content from either the data from the user to the destination, or from the destination back to the user. The Internet Privacy Remote Proxy

is not used in all modes of the Internet Privacy Client. In some modes the Internet Privacy Client connects directly to the Destination. Whether or not the Internet Privacy Remote Proxy is used depends on the privacy settings the user has set for that particular site. The Internet Privacy Remote Proxy is only used if the hiding of the user's IP, or the other changes the Remote Proxy makes to the data, are required for the particular settings. Otherwise the connection is direct.

[016] This invention provides SSL functionality for the AnonPro client. Full time SSL will enable users of the client to connect securely to the proxy if they are using any of the http protocols such as <http://www.yahoo.com> or <https://www.yahoo.com>. This invention benefits a user in at least two ways. First, a user is able to receive a secure means of communication with our proxy so that we don't introduce any more threats. Second, we effectively implement a man in the middle attack allowing us to seamlessly filter the users content for them even if they are browsing secure sites.

[017] The client code may provide hooks to redirect traffic to the client side Proxy Server (that will be described below). That server may be a fully functional web proxy that may process the https connection using the SSL module. The SSL module may be called by the client proxy server when it receives an https connection. This may happen in two ways described in FIG. 1 and FIG. 2. The first way is described by FIG. 1 that shows a signal flow diagram of an example process for HTTP request with full time SSL on. The second way is described by FIG. 2 that shows a signal flow diagram of an example process for requests made using SSL.

[018] In terms of Architecture, the Client hooks module may be a placeholder for calls and callbacks but the Client Proxy Server may be a fully functional server. This means that it may listen on ports for incoming secure as well as insecure connections and possibly spawning a new thread to handle each connection. When the client is installed the User CA keys should be generated, also the Public User CA key may be installed in the browser automatically but if this isn't possible we may provide instructions on how to do it manually. A universal site key may be utilized that may be signed by the User's Secret CA key to forge the authentication of the secure site. For security reasons, a background thread may be spawned on startup to generate a new key and swap with the universal site key after it has been generated. The universal site key may be generated and stored in many ways and at many times. For example, it could be changed for every site, or reused for every site.

[019] FIG. 3 shows a flow chart for an example process performed by the architecture of the invention, which shows how the identity of the secure server the browser wishes to connect to is assumed. In FIG. 3, when a request comes in for a secure site the system may check to see if the system has the site cert to return in the SSL handshake. To store the certificates the system may use a SHA-1 hash of the server they are representing. If the system cannot find the certificate in the system's cache the system will generate one for that site using the system's universal site certificate and the User CA Secret Key. Once generated this is stored in the cache.

[020] After all of the above is completed the system may finish the SSL handshake and begin the man in the middle attack. Essentially what the system is doing is decoding

the SSL records on the client proxy server redirecting them through the filtering code and then doing an SSL_Write to the anonymizer proxy or directly to the destination web site. A similar flow is used when reading data from the anonymizer proxy where the system does an SSL_Read giving the system the clear text that was sent. Then the system sends it though the filtering code. Finally the system may do an SSL_Write to the client, which will return it to the browser.

[021] FIG. 4 shows a signal flow diagram of an example process for determining the sequence of events on a client proxy. In FIG. 4, the sequence of events on the Client proxy may be as follows. The TCP hook has redirected the browser request to the system, the system then calls the regular socket accept and makes a call to SSL_Initialize. The client proxy SSL handler may then make calls to SSL_read/write instead of the standard recv and send calls.

[022] It is appreciated that the Client Proxy server should be very reliable so as not to have multiple servers listening on the same port because the system should not have more than one on each client. In order to prevent vulnerabilities in the system the server should do some form of client authentication to make sure other applications or even machines are trying to use the client proxy server.

[023] The processes described in FIG. 1 through FIG. 4 may be performed by hardware or software. If the process is performed by software, the software may reside in software memory (not shown) in the controller, memory, or an removable memory medium. The software in memory may include an ordered listing of executable instructions for implementing logical functions (i.e., "logic" that may be implement either

in digital form such as digital circuitry or source code or in analog form such as analog circuitry or an analog source such as an analog electrical, sound or video signal), may selectively be embodied in any computer-readable (or signal-bearing) medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that may selectively fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions. In the context of this document, a "computer-readable medium" and/or "signal-bearing medium" is any means that may contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium may selectively be, for example but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples "a non-exhaustive list" of the computer-readable medium would include the following: an electrical connection "electronic" having one or more wires, a portable computer diskette (magnetic), a RAM (electronic), a read-only memory "ROM" (electronic), an erasable programmable read-only memory (EPROM or Flash memory) (electronic), an optical fiber (optical), and a portable compact disc read-only memory "CDROM" (optical). Note that the computer-readable medium may even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

[024] In general, the system described provides for Consensual Man in the Middle Attack by using used to rewrite pages, on the fly creation of site SSL certificates, CA cert to sign all SSL site certificates, CA cert is generated per user, CA cert is automatically installed in the browser and SSL page rewriting. Where the SSL page rewriting included the Client decrypting SSL pages to rewrite before re-encrypting and sending to proxy or end web site.

[025] The system also provides for the Client to Insert information into data stream from browser to Internet through any kind of Header or by inserting cookies. The cookies may include authentication / access rights information and preferences information and utilize XML and encryption.

[026] The system may also provides for a TCP level hook for privacy service that includes the Hook redirecting traffic to a local proxy on the user's machine, the Client proxy redirecting traffic to Anonymizer proxy and the TCP hook allows IP hiding.

[027] The system may also provides for a Full time SSL without URL prefixing.

[028] The system may also provides for making cookies session only and/or change cookie expiration date.

[029] The system may also provides for gathering and generation Privacy Statistics that include Per site privacy statistics, a Privacy Analyzer real time threat display, and automated site threat analysis and rating.

[030] The system may also provides for setting per site privacy settings that include white lists, black lists, detailed custom settings, "Show details" functionality, recommended site settings list that include automatically updated and downloaded

settings, and hard coded Site settings that can't be changed by user have preset defaults and an exception list for some sites.

[031] The system may also provides for the Client to keep a list of alternate access names / IP addresses for accessing servers. The Client may tries all addresses one after another and/or each user gets a different set of access addresses.

[032] The system may also provides allows install on many computers while detect and prevent multiple simultaneous users.

[033] The system may also provides allows Client Javascript [script] rewriting.

The system utilizes a novel GUI design to manage information.

[034] While various embodiments of the application have been described, it will be apparent to those of ordinary skill in the art that many more embodiments and implementations are possible that are within the scope of this invention. Accordingly, the invention is not to be restricted except in light of the attached claims and their equivalents. The foregoing description of an implementation has been presented for purposes of illustration and description. It is not exhaustive and does not limit the claimed inventions to the precise form disclosed. Modifications and variations are possible in light of the above description or may be acquired from practicing the invention. For example, the described implementation includes software but the invention may be implemented as a combination of hardware and software or in hardware alone. Note also that the implementation may vary between systems. The claims and their equivalents define the scope of the invention.

U.S. Express Mail No.: EU245163295US
Filing Date: June 25, 2003

PATENT
Docket No. IF03003USV

CLAIMS

What is claimed is:

1. A method for allowing a user to connect to a privacy network comprising:
connecting to the network;
receiving a user name and password from a user; and
determining whether the user account is valid.

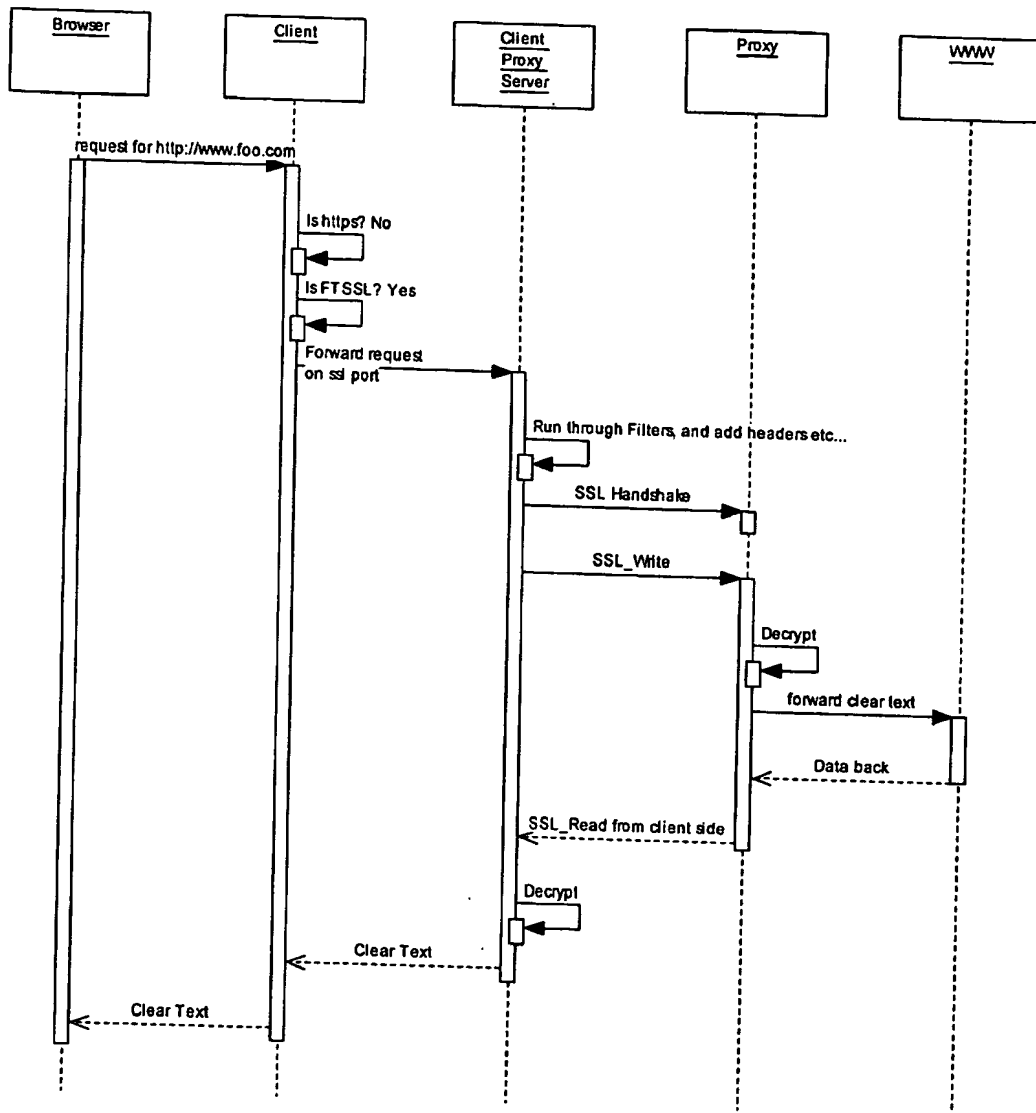


FIG. 1

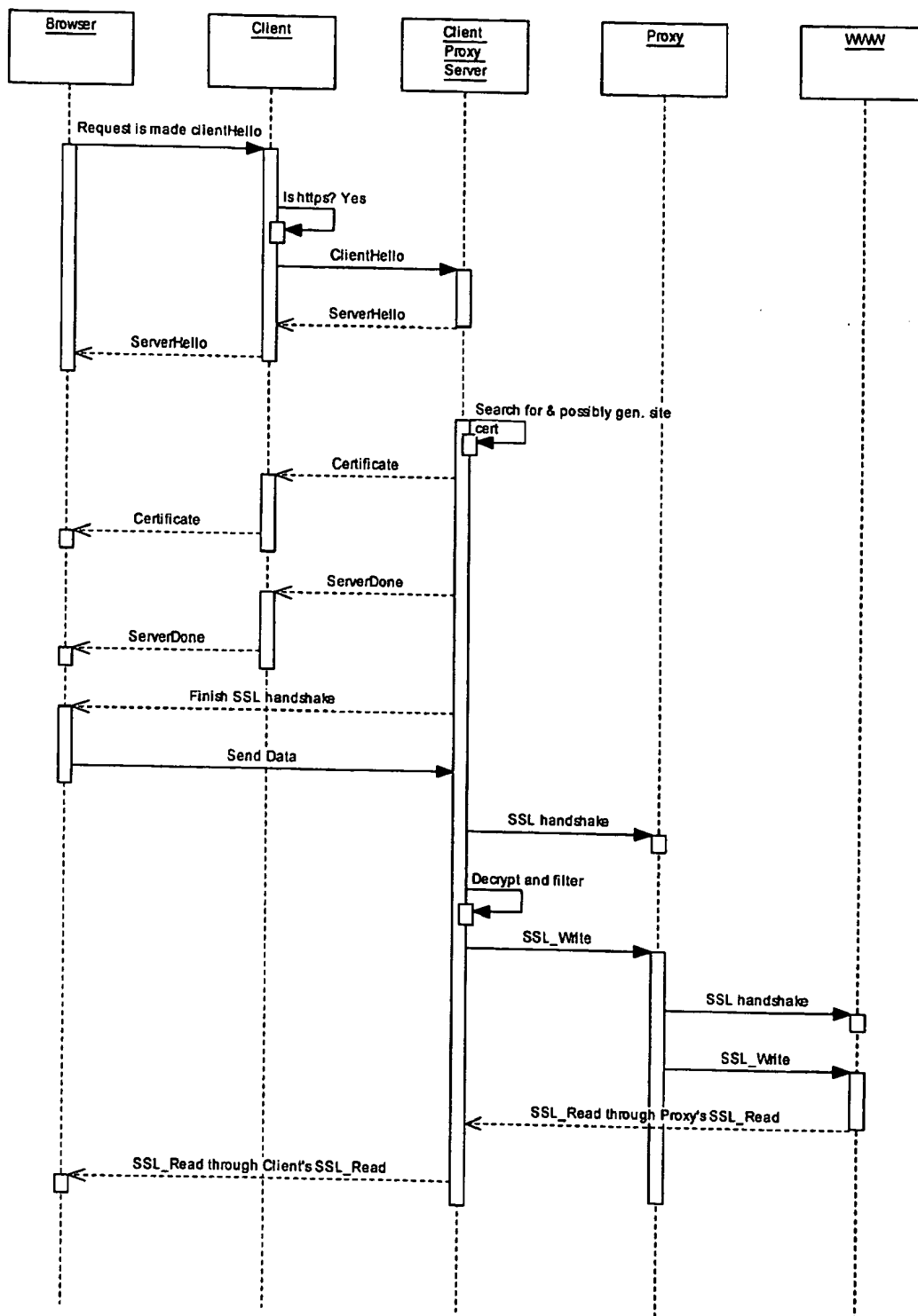


FIG. 2

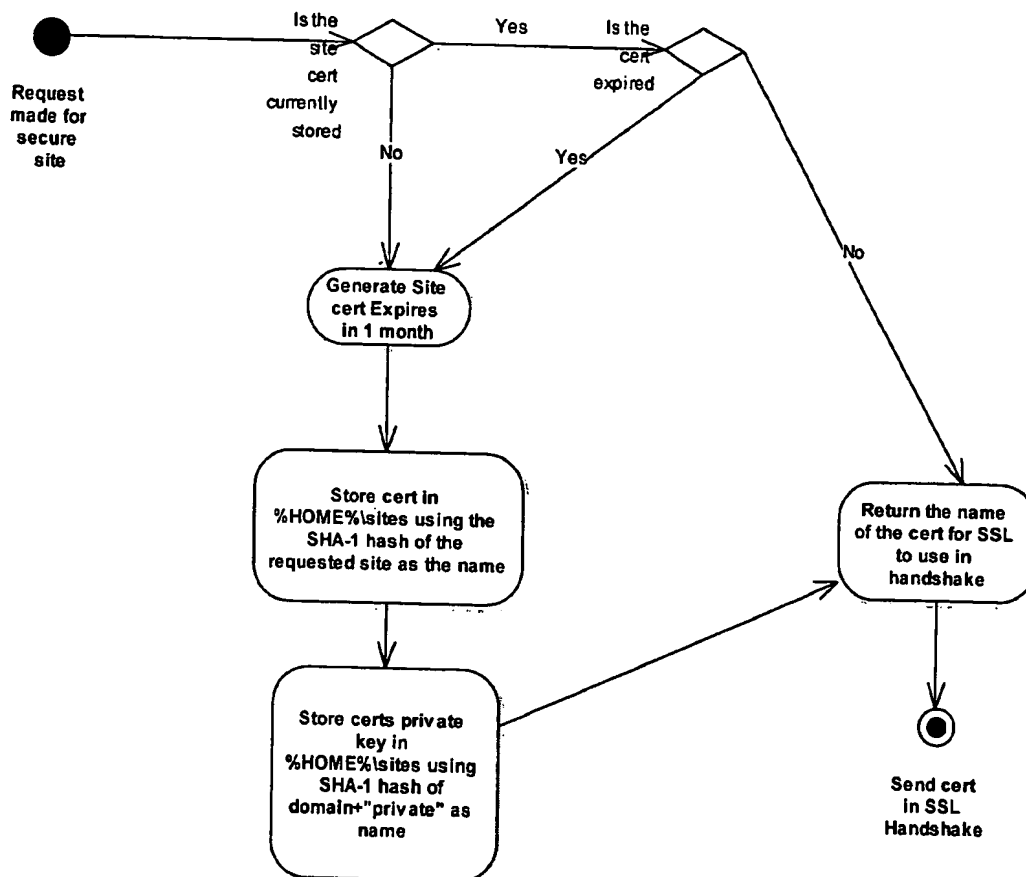


FIG. 3

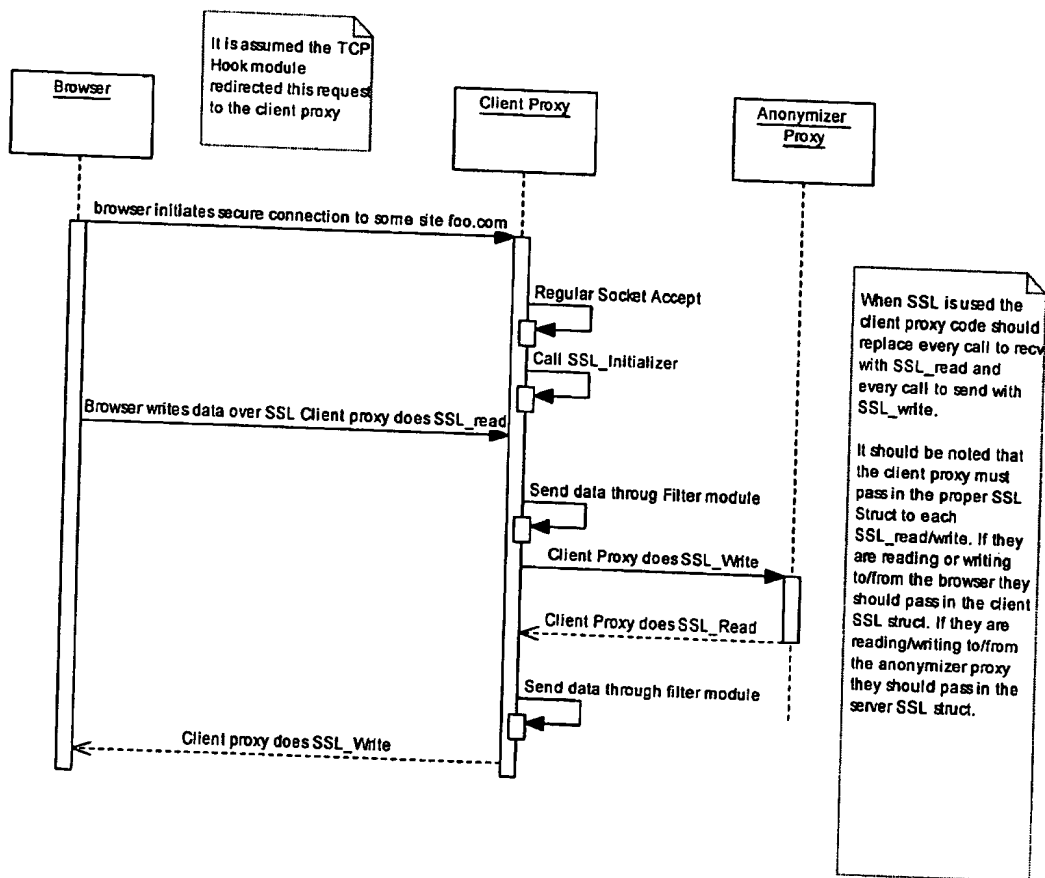


FIG. 4

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International filing date: 25 June 2004 (25.06.2004)

Document type: Certified copy of priority document

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